

The importance of social sciences for engineers

IN THE 1980s A CALL CENTRE BOOM ABSORBED many engineers who would have otherwise found it difficult to get jobs. Then came the IT boom, where India provided a lot of low-tech services to the whole world. This wave too absorbed a lot of fresh engineers. Sometimes the employers found these engineers lacking in skills. So IT majors such as Infosys and Wipro set up six-month crash courses to impart fresh engineers with soft skills. Many current surveys show that in the next few years many of the low-tech routine jobs will be done by robots. Artificial intelligence will gobble up a large chunk of the current jobs.

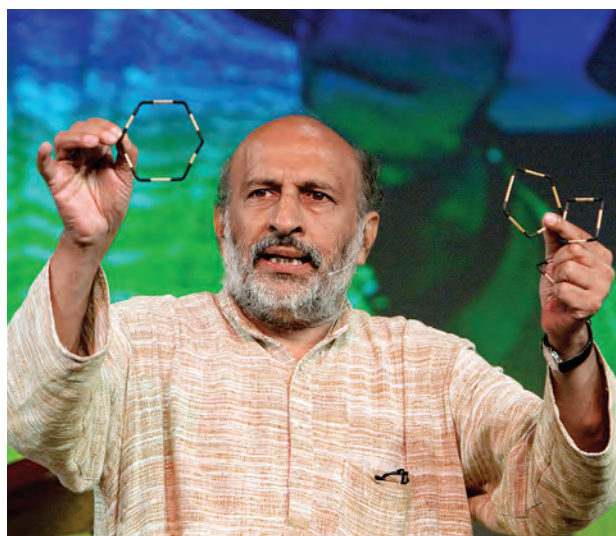
I recall my experience at IIT, Kanpur as a student and then at Tata Motors, an engineering major. In the 1970s, B. Tech courses in the IITs were a five-year affair with a social science course for the next eight semesters. Students had a wide choice of social science courses to choose from — sociology, politics, philosophy, logic, history of science, development and underdevelopment, economics, English, etc. The logic behind such courses was to expose engineering students to wider social problems. It is the social sciences that give us “values”. Only science and technical courses would churn out one-dimensional technical personnel who would have little appreciation of the socio-economic and political problems of the world. No wonder the broad based education in the IITs produced two governors of the Reserve Bank of India — D. Subbarao and Raghuram Rajan. The Yashpal Committee recommendations to improve the IITs also suggested that IITs should have more social science courses — they should not just pay lip service but have artists, writers, musicians in residence. This will enable the IITs to impart a more holistic education.

Usually, engineers join Tata Motors as graduate trainees. A truck has 6,000 different parts and many engine parts have tolerances of a few microns. The existing Industrial Training Institutes (ITIs) were in no position to provide such skilled personnel for making trucks. So, Tata Motors in its own interest started a training division where fresh engineers undergo a full-fledged, rigorous hands-on training for two years. During this period, the trainees are

rotated in all the divisions so that they get a feel of how the company is run. They do welding; operate the lathe machine and shaper to get a real feel of the production processes. This practical training stands a young engineer in good stead later on.

After the Indian economy opened up in the early 1990s, there was demand for more engineers. Most surveys point that our engineers are not suitable for employment. N. R. Narayana Murthy has publicly stated that 80 per cent of all Indian youngsters are not properly trained for jobs.

The roots are easy to trace. After Independence, Jawaharlal Nehru set up IITs and IIMs, but failed to set up an infrastructure for good primary education. No political party has favoured the common educational system. The way forward to improving our government schools and hospitals was encapsulated in a progressive judgment by the Allahabad High Court. Justice Sudhir Agarwal in a landmark judgment said that despite all assurances and



platitudes, the state of public health and the educational system remains pathetic. Why? Because the middle class and the rich have no stake in improving government systems. They live in gated communities and get private services. Government schools would improve only if all government employees sent their kids to government schools. Government hospitals and primary healthcare centres would get better if government employees patronised them and used their services. That will put enormous pressure on these public institutions to improve. This progressive judgment will perhaps remain a pipe dream. It will never be implemented by the people of power and privilege. **BW**

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